

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

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NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing
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16.07.2004

Applicant's or agent's file reference
FGJB/JLB/39749

IMPORTANT NOTIFICATION

International application No.
PCT/GB 03/01527

International filing date (day/month/year)
09.04.2003

Priority date (day/month/year)
10.04.2002

Applicant
NUMATIC INTERNATIONAL LIMITED et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/I/B/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

19 JUL 2004

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preliminary examining authority:



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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference FGJB/JLB/39749	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/GB 03/01527	International filing date (day/month/year) 09.04.2003	Priority date (day/month/year) 10.04.2002
International Patent Classification (IPC) or both national classification and IPC A47L13/58		
Applicant NUMATIC INTERNATIONAL LIMITED et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
- This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of 9 sheets.
3. This report contains indications relating to the following items:
- I Basis of the opinion
 - II Priority
 - III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV Lack of unity of invention
 - V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI Certain documents cited
 - VII Certain defects in the international application
 - VIII Certain observations on the international application

Date of submission of the demand 10.10.2003	Date of completion of this report 16.07.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Lodato, A Telephone No. +49 89 2399-8037



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB 03/01527

I. Basis of the report

1. With regard to the elements of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

5, 6 as originally filed
1-4, 7-9 received on 19.03.2004 with letter of 16.03.2004

Claims, Numbers

1-13 received on 19.03.2004 with letter of 16.03.2004

Drawings, Sheets

1/4-4/4 as originally filed

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
 - the language of publication of the international application (under Rule 48.3(b)).
 - the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
 - filed together with the international application in computer readable form.
 - furnished subsequently to this Authority in written form.
 - furnished subsequently to this Authority in computer readable form.
 - The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
 - The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
 - the claims, Nos.:
 - the drawings, sheets:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB 03/01527

5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1
Inventive step (IS)	Yes: Claims	
	No: Claims	2-13
Industrial applicability (IA)	Yes: Claims	1-13
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB 03/01527

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following document:

D1: DE 43 20 454 A (HENKEL ECOLAB & CO OGH) 22 December 1994 (1994-12-22)

The document D1 is regarded as being the closest prior art to the subject-matter of independent claim 1.

2. The subject-matter of claim 1 does not meet the requirement of Article 33(2) PCT - lack of novelty - since the document D1 discloses all the features thereof (see description column 3, line 54 - column 5, line 4; figures 2-7):

A mopping trolley (3) comprising carriage means (4) capable of translation movement over a surface, a mop assembly (7) carried by said carriage means (4) for expressing liquid from a mop head inserted into the press and at least two liquid receptacles (1, 2), a waste receptacle (2) being arranged to receive waste liquid expressed from the mop head, and a clean receptacle (1) providing a source of clean liquid for use in mopping, the clean receptacle being located under the mop press and the waste receptacle being in fluid communication with a discharge port from the mop press, whereby liquid expressed from the mop head is conveyed to the waste receptacle (see fig. 7).

3. Dependent claims 2 to 13 do not seem to contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT at least in respect of inventive step (see in this respect the documents cited against each claim in the search report).

4. While the applicant's observations submitted with the letter of 16 March 2004 have been considered, the opinion expressed above is nevertheless maintained for the following reasons:

4.1 Independent claim 1 of the present application is not directed to a mopping trolley having the mop press located above only one (clean) receptacle, the water expressed by the mop press being discharged into the other (dirty) receptacle using a "water diverter" or a "diverter discharge port". On the contrary, according to the first embodiment of the invention shown in figure 2, the mop press sits above and between the two receptacles.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB 03/01527

- 4.2 Claim 1 only specifies that the clean receptacle is located under the mop press and the waste receptacle is in fluid communication with a discharge port from the mop press, so that liquid expressed from the mop head is conveyed to the waste receptacle. Document D1 (see fig. 7) shows a mopping trolley with a mop press located above the clean (1) and the waste (2) receptacles, so that liquid expressed from the mop head is conveyed to the waste receptacle.
- 4.3 The present application refers to a mopping trolley with an arrangement of the clean and waste receptacles, which allows excess clean water from the mop head to drip into the clean receptacle before the mop is wrung in the mop press. In this way less clean water is wasted, resulting in a more efficient cleaning process.
The mopping trolley described in figure 7 of D1 certainly achieves this result.
- 4.4 Therefore from the foregoing it results that any corroborating argument related to the location of the mop press and to the use of diverting discharge port of the mop press must in the light of D1 count as irrelevant with respect to current claim 1.

10/510462
DT04 Rec'd PCT/PTO 05 OCT 2005

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MOPPING TROLLEYS

This invention relates to mopping trolleys and has particular reference to
5 mopping trolleys for facilitating the cleaning of a floor area using a mop. In a typical floor cleaning operation using a mop, the floor is first wetted with water or with a cleaning liquid and is then mopped dry. In the drying operation, the mop is wrung out or squeezed in order to remove surplus water, and is then passed over the floor to take up and absorb the surplus water to dry the floor.
10 This operation can continue until the mop has become relatively saturated and is unable effectively to absorb water or liquid. At this stage the mop is again squeezed to express surplus water and the mopping operation is repeated.

A typical mopping trolley comprises a wheeled carriage carrying a bucket with a
15 mop press disposed over the bucket which press is provided with lever means to squeeze a mop head inserted in the press and to express surplus water into the bucket. Our co-pending PCT Application No. GB00/01688 describes an improved mop press which comprises first pressing means, second pressing means and distortion means carried by at least one of pressing means
20 characterised that in use, with a mop head inserted between the pressing means, the first and second pressing means are brought together to squeeze the mop head, the arrangement being such that the distortion means in contact with the mop head distorts in response to the uneven distribution of the mop head within the press to permit pressure to be applied more uniformly over the surface of the
25 mop head whereby a substantial proportion of the liquid contained within the mop head is expressed irrespective of the type and size of the mop head and without needing to adjust the relative spacing between said first and second pressing means.

30 This co-pending application referred to above is concerned with the problem of

how to express as much water as possible from the mop head during each "squeezing" operation. In using mopping systems of the type described above, however, the operative usually wets the floor using the waste water previously expressed into the bucket. While this has been a common practice for many 5 years, the fact remains that it is more effective to clean a floor with clean water or cleaning fluid than it is using water or cleaning fluid that has already been used.

In order to overcome this problem, it is possible to have a two bucket system in 10 which the two buckets are mounted in juxtaposition on a mopping trolley. The press is located over a waste water bucket to allow expressed waste water to fall into that bucket. The other bucket provides a supply of clean water.

In DE 4320454A there is disclosed a trolley for commercial cleaning comprising 15 a frame with castors, a vertical press and two buckets in the form of rectangular boxes.

It is an object of the present invention to increase cleaning efficiency by reducing the frequency with which an operative must return to a clean liquid 20 replenishment station to charge the clean receptacle.

According to one aspect of the present invention there is provided a mopping trolley comprising carriage means capable of translational movement over a surface, a mop press assembly carried by said carriage means for expressing 25 liquid from a mop head inserted into the press and at least two liquid receptacles, wherein a waste receptacle is arranged to receive waste liquid expressed from the mop head, and a clean receptacle is for providing a source of clean liquid for use in mopping, wherein the clean receptacle is located under the mop press and the waste receptacle is in fluid communication with a 30 discharge port from the mop press, whereby liquid expressed from the mop head

is conveyed to the waste receptacle.

In this way, clean liquid is available for mopping, and waste liquid expressed from the mop head is directed away to a separate waste receptacle. The
5 receptacles will typically be buckets, but could be other containers for liquid. The liquid will typically be water and a detergent or other cleaning agent. A mop head may be dipped into the clean receptacle to be charged with clean liquid and lifted from the clean receptacle directly to the mop press for removal of excess charged fluid, the mop head being maintained over the clean
10 receptacle so that dripping excess fluid falls back to the clean receptacle below. In this way the amount of clean water wasted may be reduced, so that water dripping from the mop head falls back into the clean receptacle, rather than being conveyed to the waste receptacle before being used for cleaning. As less clean liquid is wasted, the efficiency of the cleaning process is improved as
15 fewer returns to the liquid replenishment station are necessary. The waste water is automatically diverted to the waste bucket, even though the press is not located above the waste bucket. The fluid communication is preferably achieved by gravity feed. There may also be a liquid collector projecting from the waste bucket for catching fluid draining from the mop press.

20 Preferably the clean receptacle has a greater volumetric capacity than the waste receptacle. Typically the clean receptacle has a capacity that is at least 40% greater than the waste receptacle. In preferred embodiments of the invention, the clean receptacle has a capacity that is at least 50% greater than the waste
25 receptacle. We have found that by using, in a mopping trolley, buckets of dissimilar size, the efficiency of the mopping operation for a given size of trolley may be substantially improved.

30 In one embodiment of the trolley the waste and clean receptacles are located on the trolley in a side-by-side arrangement so that the receptacles occupy a front

region of the trolley.

The waste trolley may be formed with a rim projection which extends under a mop press discharge port, thereby to collect fluid expressed from the mop head by the mop press. The rim projection of the waste receptacle may nest with a corresponding recess in the clean receptacle so that the receptacles may sit adjacent one another.

A discharge port from the mopping press may be provided at one side of a bottom region of the mop press, so that liquid is discharged from one side of the mop press.

In another embodiment of the invention, the waste and clean receptacles may be located on the trolley in a front and rear (or fore/aft) arrangement so that the clean receptacle occupies a front region of the trolley, and the waste receptacle occupies a rear region of the trolley. In this embodiment the mop press may be provided with a discharge port that directs liquid expressed from a mop head generally rearwards into the waste receptacle. The discharge port may comprise a port formed at a rear end of a bottom region of the mop press.

A discharge port for the mopping press may be formed in an end cap attached to a bottom end region of the mop press. In this way a conventional mop press, or improved mop press of the type described in PCT/GB00/01688, may be adapted for use in the present invention, by modification by the attachment of a suitable end cap, such as a moulded plastics member.

Preferably the receptacles are removeably located on the trolley. Each receptacle may be removed independently of the other, for example for waste liquid discharge or clean liquid replenishment.

12 and 13 to express water from the mop head, which is discharged through an orifice 16 in the base of the receptacle defining the mop press 10. The water 17 expressed through orifice 16 is discharged into a waiting bucket 18. An identical bucket 19 (see Figure 1B) is disposed in side-by-side relationship with bucket 18 and contains fresh cleaning fluid for application to the floor by the mop.

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First embodiment

In Figure 2, the mopping trolley in accordance with the present invention comprises a generally tubular frame 20 having a central upstanding portion 21 and a horizontal portions 22 which serve to form a base frame together with corresponding portions on the far side (not visible).

The frame 20 has, towards each corner (near two visible), a downwardly projecting portion 23 which carries at its lower end a caster indicated generally at 24. A base frame member 25 of the trolley carries a plastic tray 26 adapted to accommodate a pair of buckets 27 and 28 respectively. The buckets are disposed fore-aft, so that bucket 27 is at a front end region of the trolley (i.e. working side), whereas the bucket 28 is at a rear end region of the trolley. The bucket 27 has approximately twice the capacity of bucket 28 and is adapted to be filled with cleaning fluid for application to the floor by dipping a mop head into the fluid in bucket 27, shaking the surplus from the mop head back into the bucket and then applying the cleaning fluid to a floor to be cleaned in even stokes to distribute cleaning fluid thereover. After distribution of cleaning fluid the mop head (not shown in figure 2, but as shown in figure 1) may be returned to a mop press 10. The mop press is hung from a transverse space frame member 22. The mop press is then used to express dirty fluid from the mop head in the usual manner. The mop press has the general configuration of that shown in figure 1. However, the mop press is provided with an end cap 100 formed of moulded plastics material. The end cap is formed with a draining port 101 at a lower rear end region thereof. This drains over and directly into the rear bucket 27, as

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shown in figure 2. In this way, waste water drains directly into the rear waste bucket, even though the mop press sits generally above and over the front clean bucket. The pressed mop may then be entered into the clean bucket for charging with cleaning fluid, and the cleaning process repeated.

5

Second embodiment

The embodiment shown in Figures 3 and 4 provides for a larger receptacle 37 and a smaller receptacle 38 to be accommodated in side-by-side relationship. Common features are numbered as per figures 1 and 2. In this embodiment, the physical height of each receptacle is the same but the volumetric capacity of the receptacle 37 is approximately twice that of the "waste" receptacle or bucket 38. The upper part of bucket 38 is provided with a lateral projection 40 towards the rear of bucket 38 and on one side thereof, the projection 40 being of a sufficient depth that water can be discharged into it without significant splashing. The base of the projection is closed to guide the water entering projection 40 (dashed lines in figure 3) into the main body of volume of receptacle 38. The larger container 37, which contains clean water and cleaning agent solution, is correspondingly shaped at 41 (see figure 4) to accommodate the projection 40 from the adjacent bucket, so that the two buckets nest together. The wall of the bucket 37 is shaped over its whole depth to accommodate the projection 40 of bucket 38. In this way, the "clean" bucket 37 can be removed from tray 25 without disturbing bucket 38.

In an alternative embodiment (not shown), a portion of the body of bucket 37 may be expanded to extend under the overlay portion 40 of bucket 38 thereby increasing the volume of the "clean" bucket 37 still further.

In this second embodiment, the mop press has an alternatively configured end cap 100. The end cap has a bottom side that is inclined down towards the waste bucket 38. A drain port 101 is formed at the side region of the end cap, so that

the port drains onto the projection 40 of the waste bucket. In this way the mop press drains directly into the waste bucket 38, whilst being located above the clean water bucket 37. Thus during the mopping process a mop head (not shown) may be taken from the mop press and allowed to drop back into the 5 cleaning fluid bucket 37 without moving the mop head laterally from the waste bucket (as would be the case for a prior art arrangement in which the mop head was pressed over the waste bucket., as shown in figure 1B). This makes the mopping pressing and changing actions considerably more convenient for the operator.

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The relatively shallow depth of the overlay portion 40 means that the bucket 38 can be removed easily, with bucket 37 remaining in place without requiring an operative to lift a heavy bucket full of water to a considerable height.

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In both above embodiments, the relatively large size of the cleaning bucket ensures that few trips to water replenishment stations are necessary, thereby increasing the operative's effective cleaning time. The combination of bucket size differential, location of the mop press over the cleaning bucket and draining port orientation over the waste bucket provides enhanced mopping efficiency.

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Claims

1. A mopping trolley comprising carriage means capable of translational movement over a surface, a mop press assembly carried by said carriage means for expressing liquid from a mop head inserted into the press and at least two liquid receptacles, wherein a waste receptacle is arranged to receive waste liquid expressed from the mop head, and a clean receptacle is for providing a source of clean liquid for use in mopping, wherein the clean receptacle is located under the mop press and the waste receptacle is in fluid communication with a discharge port from the mop press, whereby liquid expressed from the mop head is conveyed to the waste receptacle.
2. A mopping trolley as claimed in claim 1 wherein the clean receptacle has a greater volumetric capacity than the waste receptacle.
3. A mopping trolley as claimed in claim 2 wherein the clean receptacle has a capacity that is at least 40% greater than the waste receptacle.
4. A mopping trolley as claimed in claim 3 wherein the clean receptacle has a capacity that is at least 50% greater than the waste receptacle.
5. A mopping trolley as claimed in any preceding claim wherein the waste and clean receptacles are located on the trolley in a side-by-side arrangement so that the receptacles occupy a front region of the trolley.
6. A mopping trolley as claimed in claim 5 wherein the waste trolley is formed with a rim projection which extends under a mop press discharge port, thereby to collect fluid expressed from the mop head by the mop press.
7. A mopping trolley as claimed in claim 6 wherein the rim projection of

the waste receptacle nests with a corresponding recess in the clean receptacle so that the receptacles may sit in close proximity.

8. A mopping trolley as claimed in any preceding claim wherein a discharge port from the mopping press is provided at one side of a bottom region of the mop press, so that liquid is discharged from one side of the mop press.

9. A mopping trolley as claimed in any of claims 1 to 4 wherein the waste and clean receptacles are located on the trolley in a front and rear arrangement so that the clean receptacle occupies a front region of the trolley, and the waste receptacle occupies a rear region of the trolley.

10. A mopping trolley as claimed in claim 9 wherein the mop press is provided with a discharge port that directs liquid expressed from a mop head generally rearwards into the waste receptacle.

11. A mopping trolley as claimed in claim 10 wherein the discharge port comprises a port formed at a rear end of a bottom region of the mop press.

12. A mopping press a claimed in any preceding claim wherein a discharge port for the mopping press is formed in an end cap attached to a bottom end region of the mop press.

13. A mopping press as claimed in any preceding claim wherein the receptacles are removeably located on the trolley and each receptacle may be removed independently of the other, for example for waste liquid discharge or clean liquid replenishment.

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